

INTERNET MULTICASTING SERVICE

"Your Place in Cyberspace"



Town Crier to the Global Village

The Internet Multicasting Service is a non-profit radio station in cyberspace. We operate two channels. The Internet Town Hall is a public affairs channel and Internet Talk Radio is a science and technology channel. Never heard of a station in cyberspace? Before this year, it didn't exist. Today, the Internet Multicasting Service sends out hundreds of megabytes per month of programs.

This brochure tells you a bit about the Internet Multicasting Service. We started with *Geek of the Week* but have rapidly expanded to become "your place in cyberspace." We hope you'll join us as we invent new ways of exploring the Internet.

*"Turning the Desktop PC Into
a Talk Radio Medium"*

New York Times
March 4, 1993, Front Page

*"This isn't bits and bytes of text on
your computer screen—it's actual
digital radio"*

Adweek
May 17, 1993

How Internet Talk Radio Works

Your computer processes many kinds of data, from spreadsheets to documents to photographs. To a computer, sound is just another kind of data. Any multimedia computer has sound support; any Macintosh, NeXT, Sun, or other modern workstation has built-in sound support. Any PC with a sound card has sound support. The only catch is ... what sounds are there to play? After the initial thrill of making your computer quack like a duck when it starts up, you're going to get bored. Enter Internet Talk Radio. Our programs are just a long version of a duck quacking.

Using our state-of-the-art digital production studios in Washington, D.C.'s National Press Building, we produce radio programs. These programs are published as digital sound files. Programs are then put onto a large server at UUNET Technologies, where the files are automatically distributed around the world to several dozen servers maintained by networks such as NASA, IIJ in Japan, AARNET in Australia, the EUnet network in Europe, and many others. Over 100,000 computer users in 30 countries listen to our programs on the global Internet computer network.

Playing the files can be as simple as an individual user playing the file from a disk drive or as sophisticated as multicasting in real time over a corporate network. The files have no copy protection and require no special software. Users have come up with all sorts of imaginative ways of playing the data, including linking the programs into the hypertext World-Wide-Web system, spooling the programs into the company voice-mail, and even downloading the files onto a Mac Powerbook and listening to the radio on the ride home from work.

We call this radio, but radio is only a metaphor. Think about it: this is radio that you start, stop, pause, and rewind. This is radio where you can change the order of the programming. This is asynchronous radio, radio that you can talk back to. This isn't radio, this is something new.

"Move over, Larry King"

Popular Science
July, 1993

*"Internet Talk Radio inhabits a
medium with enormous potential"*

Associated Press
May 31, 1993
(3-Part Feature)



The National Press Club

Located two blocks from the White House, the National Press Building is the home to 300 media organizations, the Foreign Press Center, and the National Press Club. It is the National Press Club that attracts the most attention, attracting speakers ranging from Yassar Arafat to the Dalai Lama to Julia Childs who come to speak to the world press.

The Internet Multicasting Service has become an integral part of this internationally known meeting place, a town hall where the leaders of the world come to speak. In April, we joined C-SPAN and National Public Radio to become the third network licensed to carry all National Press Club Luncheon Addresses. From our own broadcast booth in the Grand Ballroom, we've brought a unique range of speakers to the Internet spanning all aspects of public affairs.

The agreement between the National Press Club and the Internet Multicasting Service is an extensive one. Our 10 Mbps Internet link—one of the fastest in Washington, D.C.—has been extended into the Club facilities. The Internet Multicasting Service is working closely with the Friedheim Research Library to computerize the library and train the staff, as well as conduct seminars for journalists anxious to use the Internet as a research tool and as a distribution medium.

"Not your typical radio show"

Business Week
August 9, 1993

Building an Internet Town Hall

Our goal is to develop a presence on the Internet, a professional, informative source of news and information about public affairs and science and technology. We want to be your place in cyberspace, the town crier to the global village.

By locating in the National Press Building, the Internet Multicasting Service hopes to be able to provide a crucial link between the traditional media and the Internet. We want the window to work both ways. On the one hand, we want to open a window so that the Internet can see the world of public affairs that gravitates around the National Press Building. On the other hand, we want to open a window out to the Internet so that journalists can begin learning how to communicate with the global village and how to take advantage of the immense stores of information.

Ultimately, we are trying to build an Internet Town Hall, a continuing presence on the network where public affairs are discussed. The town hall is not some scripted photo opportunity, it is a continuing discussion among citizens and their leaders. We envision an Internet Town Hall that takes full advantage of the Internet. While some politicians have painted a picture of a town hall, their visions rarely go beyond a glorified telemarketing operation. To us, the Internet Town Hall is an idea, not a place, an idea that we can increase our ability to participate in our government.

"We are laying the crucial building blocks for the next century, doing for our children what the builders of the railroads, the telephones, and the interstate highways did for us."

Carl Malamud
St. Petersburg Times
March 7, 1993



Our First Season: 4/93-8/93

From April to August of 1993, the Internet Multicasting Service distributed over 50 hours of programming, ranging from Congressional Hearings to the Dalai Lama to in-depth interviews with our own *Geek of the Week*. Over a gigabyte of data was distributed to 100,000 listeners in over 30 countries. Here are some of the programs that aired in our first season!

National Press Club Luncheons

Secretary Bruce Babitt, Secretary of the Interior
His Holiness, the Dalai Lama of Tibet
Hershel Shanks, Dead Sea Scrolls Archeologist
Senator Bob Dole
Rt. Hon. C.F. Patten, Hong Kong
Michael Kantor, U.S. Trade Representative
Richard Riley, Secretary of Education
Secretary Ron Brown, Secretary of Commerce
Alejandro Junco, Mexican Publisher
Pamela Maraldo, President of Planned Parenthood
Dr. Robert Ballard, Oceanographer and Explorer
Dr. Amitai Etzioni, Communitarian
Robert Strauss, Texan
Carol Browner, Environmental Protection Agency
F.W. Deklerk, President of South Africa
Janet Reno, Attorney General
Jose Carreras, Tenor
Dr. Robert Sheets, National Hurricane Center
R. Trumka, United Mine Workers

Soundprint

Looking for Bears
The Education of Charles 67X
Infinity
Pigs in Paradise
Vavilov's Ghost
Grandmother's Seeds

Special Events

Talk of the Nation/Science Friday
Broadcast of Congressional Hearings
The Global Schoolhouse Project

TechNation: Americans and Technology

Opposition to the Technology Initiative
Satellites
Environmental Issues
GRAPES and Mice
Cypherpunks and Body Parts
Science is NOT Funny
Dr. John Gibbons, OSTP, White House
Buzz Aldrin, Man of Space
The Technology of Teotihuacan
Gender, Science & Society
Fusion Confusion
Dr. Glenn Seaborg
Virus/Anti-Virus
Technology and Medical Ethics

Geek of the Week Interviews

Marshall T. Rose: Network Management
Steve Deering: SIP and Multicasting
Brewster Kahle: WAIS and Resource Discovery
Milo Medin: The NASA Science Internet
Glenn Kowack: Commercial Networking in Europe
Jeff Schiller: Network Security
John Romkey: ToasterNet
Cliff Lynch: Library Automation
Peter Deutsch: White Pages Services
Rob Blokzijl: The RIPE Network Coordination Center
Christian Huitema: Network Research
L. Stuart Vance: Encapsulation and Tunnelling
Steve Kille: The ISO Development Environment

"Pushing the Limits"

Bangkok Post
January 6, 1993



NPR Meets the Internet

"Let me get this straight," talk show host Ira Flatow quizzed the caller on National Public Radio's *Talk of the Nation: Science Friday*. "You don't have a telephone? Tell me how you're talking to me!"

The caller was talking to Ira Flatow (and several million listeners) from his computer, listening to the radio broadcast on the Internet Multicast Backbone and talking back to the National Public Radio show using the microphone attached to his workstation.

The Internet Multicasting Service had linked National Public Radio to the Internet for a historic hour of live radio. The link used both low-tech e-mail and high-tech multicasting to allow Internet users to send in their comments to the talk show. A user could sit at home and listen to the show on a radio, using an e-mail account on a system such as MCI Mail to send in comments.

"An historic occasion"

Weekend Edition
National Public Radio
May 29, 1993

"A digital first"

Current: The Public Telecommunications
Newspaper
May 31, 1993



The Global Schoolhouse

April 28, 1993 was a big day for the fifth grade class at Long Branch Elementary School in Arlington, Virginia. Several hundred adults around the Washington area were gathering to watch as the children transformed their classroom into a new kind of TV station. This was the official launch for the National Science Foundation's Global Schoolhouse Project and the Internet Multicasting Service had been working for several months to coordinate the efforts of over 30 corporate sponsors.

For 6 weeks, children in California, Virginia, Tennessee, and London had been studying the environment. They read Al Gore's *Earth in the Balance* and did original research on environmental awareness in their communities. Many of the children had prepared videotapes and other educational materials.

In the Global Schoolhouse Project, the children used simple technology on the Internet to conduct videoconferences with each other. For the April 28 launch, the children briefed each other on their research results. Also attending the video conference were senior officials from the White House, NASA, and the British Foreign Service. The children briefed the officials on their research and gave them suggestions on what government can do to help the environment. The Global Schoolhouse has become a permanent project for the National Science Foundation and is rapidly expanding all over the world.

"Global Schoolhouse' Links
Youths Via Video"

Washington Post
April 29, 1993

"Glimpse a very exciting future"

The Independent, London
April 29, 1993

Our Second Season: 9/93-12/93

From August until the end of 1993, the Internet Multicasting Service completed the installation of our studios in the National Press Building. During this period, programming continued uninterrupted. Programs from the public broadcasting community including the award-winning 8-part series *HELL'S BELLS: A Radio History of the Telephone*. National Press Club Luncheons featured a stellar lineup that included Yassar Arafat, Bobby Knight, Hank Aaron, Margaret Thatcher, Stephen King, and Yitzhak Rabin.

At the end of the season, we completed the link between our studios, the National Press Club, and the Internet, sending Larry King's luncheon address out to the Internet, live. The next week, Al Gore came to the National Press Club and made a major policy address about the information superhighway. The Internet Multicasting Service sent the speech out to the Internet live and at the end of the speech, the Vice President was presented with a floppy disk containing instant feedback from the public.

We ended our second season on the air by going from Salman Rushdie to Santa Claus. Rushdie made a surprise appearance at the National Press Club and the Internet Multicasting Service was the only news organization to carry the entire press conference. At the same time, we were busy fielding over 4500 e-mail messages coming into the mailbox we registered for Santa@North.Pole.Org.

"Glimpse of the Future"

Associated Press
January 10, 1994

*"A totally new medium:
cyberspace radio."*

Boston Globe
January 23, 1994

*"Santa Slides Down the Electronic
Chimney"*

The New York Times
December 25, 1993

*"It's perfectly legal.
But it's definitely revolutionary."*

MONDO 2000
December, 1993

Our Third Season: 1/94-3/94

The Internet Multicasting Service finishes off its first year on the air with a dramatic expansion in services. On the audio front, we use our studios for production of "Geek of the Week" and for new programs such as HarperAudio!, a daily programs that features actors and poets reading works, including J.R.R. Tolkien, Robert Frost, Ernest Hemingway, and T.S. Eliot reading their own works. In the area of non-audio data, the highest-profile addition to our programming mix is the SEC database which went on-line just 1 week after we received our first data. Previously only available from commercial sources at high prices, Internet dissemination of SEC data is an important change in the way government information is distributed to the public. In addition to the SEC data, we are distributing databases from the Patent Office, the Federal Reserve Board, and the Federal Election Commission.

*"U.S. Shifts to Freer Policy on Data
Access"*

The New York Times
October 22, 1993

"A different kind of public offering"

U.S. News & World Report
January 24, 1994

*"A vital precedent for freer
government information"*

WIRED
January, 1994

"Building a better surfboard"

National Journal
December 4, 1993



TPC.INT: A New Kind of Telephone Company

"Gentlemen, start your fax machines!"

In August, 1993, four very senior computer scientists from around the world, dressed in white lab coats, plugged four phone lines into the machines arrayed on a table at the front of the ballroom. Faxes started spewing out. Two hours later, 300 faxes had been received from places such as Alice Springs, Australia.

The faxes had all been sent over the Internet to a local fax server, which placed a local call to deliver the document. In effect, every fax machine in the world becomes a remote printer for every person who has an e-mail account that can reach the Internet.

The Internet Multicasting Service was participating as the secretariat for this adventure in global bypass. Our radio station appeared to be going well, so we decided it was time to help start a phone company. We teamed up with Dr. Marshall T. Rose, a distinguished author and implementor.

This is a different kind of phone company, one made up of small, independent mom-and-pop operations, a dynamic, competitive market for services built on top of the general-purpose Internet infrastructure. The service is built around a subdomain of the Internet: TPC.INT. TPC.INT is a bridge between the telephone world and the Internet world. The first service is remote printing, allowing any e-mail user to address fax machines around the world. The cost to the e-mail user is a small fraction of what it would have cost to send the fax from one fax machine to another. The addressing is transparent, allowing the user to send mail to a phone number. Local gateways around the world sign up to deliver fax messages within their service area.

Launched in June, 1993, the service quickly took off. Operators in Australia, Japan, the Netherlands, and many other countries promised to sign up. In the U.S., major metropolitan areas such as Washington, D.C., Silicon Valley, New York, and Boston are all on-line. A mix of organizations—including UUNET Technologies, Sun Microsystems, NASA Ames Research Center, and the University of Michigan—have joined the project.

What makes this especially interesting is the distributed model which allows different kinds of servers to all coexist and jointly provide a global service. Some servers, such as government research laboratories, are willing to deliver to fax machines only within their organizations. Other servers are willing to place calls to fax machines in a wide area, paying for the calls (and making a profit) by selling up to one-third of the cover page as an advertisement.

Radio, telephone, TV: the analogies to our present means of communications abound, but the point remains that the Internet is something new. What the services have in common is that they are built on top of our general-purpose Internet infrastructure. It is essential that we continue to invest in this infrastructure, building a global village for ourselves and our children.

"Is this global bypass?"

The New York Times
July 21, 1993

"Log another first for the Internet"

Washington Post
July 19, 1993

"New high-tech advertising venue"

Washington Business Journal
September 3-9, 1993

"An international bucketbrigade"

Wall Street Journal
August 27, 1993



Supporting the Internet Multicasting Service

Major support for the launch of Internet Talk Radio was initially furnished by Sun Microsystems and O'Reilly & Associates, including valuable contributions of money and equipment which made the service possible. Continuing major support for the Internet Multicasting Service is provided by Interop Company, O'Reilly & Associates, and Sun Microsystems. Network connectivity at 10 Mbps and IP support is provided by MFS Datanet and by UUNET Technologies. Additional support for the Internet Multicasting Service is provided by Harper Collins and Persoft. For special events, the Internet Multicasting Service has worked with a large number of prestigious organizations that have contributed people or other resources including Xerox PARC, ARPA, National Science Foundation, Cornell University, and many others.

Here are a few ways *you* can make a tax-deductible contribution:

- ☛ Underwriters contribute cash in support of specific programs. There are many underwriting opportunities at the Internet Multicasting Service—call us and we'll discuss how your organization can receive global recognition while making an important contribution towards better news and information for the Internet community.
- ☛ In-kind contributions are used to develop our infrastructure and for support of special events such as Internet Town Hall meetings.
- ☛ Grants are used to develop our infrastructure for new projects, including new and better programs and support of our research efforts into new ways to use the Internet.

"When a digital highway circles the globe, the fellow who builds a better mousetrap will find that the path to his door already exists. Malamud of Internet Multicasting Service is one such electronic entrepreneur."

Fortune Magazine
Special Report, Autumn, 1993

For More Information

For the Frequently Asked Questions (FAQ) sheet:	info@radio.com
For the current list of known Internet Multicasting Service distribution sites:	sites@radio.com
To subscribe to the Internet Multicasting Service announcements list:	announce-request@radio.com
To send mail to a human being about the Internet Multicasting Service:	questions@radio.com
For the FAQ on TPC.INT and Remote Printing:	tpc-faq@town.hall.org
For the list of coverage for remote printing:	tpc-coverage@town.hall.org

More traditional ways to reach us:

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*"From the depths of cyberspace,
a new medium has emerged."*

Micro Times
May 31, 1993